

REMARKS

Claims 1-16 are currently pending. On April 24, 2003, Applicants' representative made a provisional election with traverse, to prosecute the invention of Group I, Claims 1-8. Applicants hereby affirm this election. In an Office Action mailed May 7, 2003, the Examiner had raised a number of issues, listed below in the order they are addressed herein:

- 1) Claims 2, 6 and 7 are objected to for various informalities;
- 2) Claim 7 is rejected under 35 USC § 112, second paragraph, as allegedly being indefinite; and
- 3) Claim 3 is rejected under 35 USC § 103(a), as allegedly unpatentable over Urban (U.S. Patent No. 3,859,414).

Applicants have amended Claims 1, 6 and 7, and have canceled Claims 2, and 9-16, in order to further the prosecution of the present application and Applicants' business interests, yet without acquiescing to the Examiner's arguments. Applicants reserve the right to prosecute the original, similar, or broader claims in one or more future application(s). These amendments do not introduce new matter and are not intended to narrow the scope of any of the claims within the meaning of *Festo*.¹

1. The Claims Are Proper

The Examiner has objected to Claims 2, 6 and 7 for various informalities. Applicants have amended Claims 1, 6 and 7, and have canceled Claim 2, in order to further the prosecution of the present application and Applicants' business interests, yet without acquiescing to the Examiner's arguments and while reserving the right to prosecute the original, similar, or broader claims in one or more future application(s). In the first place, Applicants have canceled Claim 2 and have amended Claim 1 to recite "0.14% and 0.16% by weight," as the units corresponding to the claimed range. Support for this amendment is found, for example, in Table 2, which provides the sulfur content of gasoline in percent weight, before and after treatment. In the second place, Applicants have amended Claim 6 to recite "characterized by the use of multiple filters." Support for this amendment is found, for example, in the legend of Figure 1 "showing the use of silica gel-packed filters of the present

¹ *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 122 S.Ct. 1831, 1838, 62 USPQ2d 1705, 1710 (2002).

invention" (Specification, at page 4, lines 11 and 12). Lastly, Applicants have amended Claim 7 to recite "wherein the filter operates at the exit temperature and pressure of gasoline after sulfur-reduction treatments at catalytic plants." Support for this amendment is found, for example, in the description which teaches "[f]ilters (4) and (5) are to operate at the exit temperature and pressure of gasoline from the MEROX treatment (3) possessed by catalytic plants" (Specification, at page 5, lines 14 and 15). As the amended claim set is proper, Applicants respectfully request that this objection be withdrawn.

2. The Claims Are Definite

The Examiner has rejected Claim 7 under 35 USC § 112, second paragraph, as allegedly being indefinite for reciting the limitation "the sulfur-reduction treatments" with insufficient antecedent basis (Office Action, page 4). As detailed above in section one, Claim 7 has been amended to recite "after sulfur-reduction treatments." As the amended claim set is definite, Applicants respectfully request that this rejection be withdrawn.

3. The Claims Are Patentable Over Urban

The Examiner has rejected Claims 1-8 under 35 USC § 103(a) as allegedly unpatentable over Urban (U.S. Patent No. 3,859,414). The Examiner states the:

"Urban reference discloses a treatment using silica gel to reduce sulfur in a gas stream. See Column 2, lines 28-37....[but] does not disclose a treatment to reduce sulfur in catalytically processed and intermediate crude oil distillates...does not disclose a treatment characterized by producing catalytically processed gasoline with a sulfur content of less than between approximately 0.14% and 0.16%....does not disclose a treatment characterized by producing catalytically processed gasoline with a final boiling point between 220 C and 225 C...does not disclose a treatment characterized by employing 28,200 Grade-12 silica gel packed in a vessel or filter open at both ends, through which circulates a flow of catalytically processed gasolines or intermediate crude-oil distillates containing sulfur...does not disclose a treatment characterized by [installation] of silica gel-packed filters at the exit from catalytically processed gasoline and intermediate crude-oil production processes, provided for subsequent reduction of sulfur content...does not disclose a treatment characterized by the fact that there may be multiple filters assembled in series for reduction of sulfur content in catalytically processed gasolines and intermediate crude oil distillates...does not disclose a treatment wherein the filter operates at the exit temperature and pressure from the sulfur-reduction treatments at plants for production of catalytically processed gasoline and

distillation of intermediate crude-oil products...[and] does not disclose a treatment characterized by the fact that the filter is used until the output of catalytically processed gasoline from the filter contains 0.15% sulfur by weight at which time the filter must be changed. ...

It would have been obvious ...to utilize a treatment characterized by producing catalytically processed gasoline with a sulfur content of less than between approximately 0.14% and 0.16% because the reference discloses the use of silica gel as a sulfur remover and it would be appropriate to utilize the gel in a manner effective to reduce sulfur levels to an acceptable level and because the reference discloses sulfur removal of 90 to 99% or more. See Column 10, line 35" (Office Action, pages 5 and 6).

Applicants remind the Examiner that in order to establish a prima facie case of obviousness, three basic criteria must be met: 1) there must be some suggestion or motivation to modify the reference; 2) there must be a reasonable expectation of success; and 3) the prior art reference must teach or suggest all the claim limitations. Applicants assert that the Examiner has failed to establish at least the last two of the three criteria with respect to the pending claims.

In particular, Applicants assert that the sole teaching of Urban in regard to the use of silica gel for the removal of sulfur from a gas stream is a sentence which reads:

"[r]egardless of the source of the gas stream containing H₂S, the problem of removal of H₂S therefrom has been solved in the prior art in [a] number of different ways which generally involve one or more of the following techniques: (1) selective absorption of H₂S into a wide variety of liquid absorbents, (2) adsorption on a suitable solid adsorbent such as activated charcoal, silica gel, nickel oxide, alumina, crystalline aluminosilicates, etc., with eventual conversion of the adsorbed H₂S into a readily removable sulfur-containing product; and (3) selective reaction of H₂S with a suitable chemical reagent which produces an easily separable sulfur-containing product" (Urban, at column 2, lines 28-40).

In fact, the disclosure of Urban is directed to the description a method for removing H₂S from a gas stream:

"which comprises contacting the gas stream with an aqueous solution of a **water-soluble sulfite** [(i.e., ammonium sulfite, sodium sulfite, and potassium sulfite)] at a pH of about 6 to about 7, a temperature of about 20° to about 150°C and a mole ratio of hydrogen sulfide to sulfite of less than 0.5:1, whereby to form a treated gas stream which is substantially reduced in H₂S content and a rich absorbent stream containing a thiosulfate compound and which is substantially free of elemental sulfur" (Urban, at Claim 1, emphasis added; and See, Urban, Examples I, II, and III).

Moreover, Urban teaches that:

"[t]he treated gas stream withdrawn from the contacting step will be substantially reduced in [H₂S] content - typically 90 to 99% or more of the H₂S content thereof is removed by **my method**" (Urban, at Column 10, lines 33-36, emphasis added).

Thus, although the methods of Urban comprising the use of water-soluble sulfite may be expected to yield a product with a low sulfur content, Urban fails to provide a reasonable expectation of success that methods comprising the use of a silica gel will **also** yield a product with a low sulfur content, particularly in the claimed range of less than between 0.14% and 0.16% by weight. In fact, in unclaimed embodiments, Applicants teach methods comprising the use of a silica gel for reducing sulfur which yield a product having a sulfur content above 0.16% by weight. Specifically, under certain conditions Applicants obtained a product with a sulfur content of 0.1752% by weight, and under other conditions obtained a product with a sulfur content of 0.1786% by weight (*See*, Specification, at page 6, lines 15 and 27).

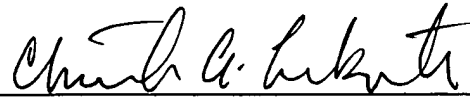
Additionally, Urban fails to teach or suggest the additional limitations of Claims 3-8 comprising: a final boiling point of between 220°C and 225°C, employing 28,2090 Grade-12 silica gel, installation of silica gel-packed filters at the exit, the use of multiple silica gel-packed filters, silica gel-packed filters operating at exit temperature and pressures, and silica gel-packed filter replacement when the gasoline output contains 0.15% sulfur by weight. Applicants respectfully traverse the Examiner's undocumented assertions that these additional limitations would be obvious to one having ordinary skill in the art. Accordingly, Applicants contend that the Examiner must provide documentary evidence either in the form of a literature citation, or in the form of a Declaration (if the Examiner is relying upon personal experience), as a basis for the assertion that the prior art teaches the presently claimed invention. As a prima facie case of obviousness has not been established, Applicants respectfully request that this rejection should be withdrawn.

CONCLUSION

Applicants respectfully request that a timely Notice of Allowance be issued in this case. However, should the Examiner believe that a telephone interview would aid in the

prosecution of this application, Applicants encourage the Examiner to call the undersigned collect.

Dated: November 6, 2003



Christine A. Lekutis
Registration No. 51,934

MEDLEN & CARROLL, LLP
101 Howard Street, Suite 350
San Francisco, California 94105
415.904.6500